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PROGRAM

Arkansas Academy of Science 84th Annual Meeting April 7-8, 2000 Hot Springs, Arkansas

SCHEDULE OF EVENTS

Friday, April 7, 2000

9:00 a.m. - 4:00 p.m.	Registration	Lobby	9:00 a.m. - 11:45 a.m.	Paper Sessions	
8:30 a.m. - 10:00 a.m.	Executive Committee Meeting	Board Room		Vertebrate Zoo II	Room 2307
10:30 a.m. - 11:30 a.m.	First Business Meeting	Board Room		Botany/Environmental	Room 2308/09
11:30 a.m. - 12:45 p.m.	Lunch (See dining info)			Chemistry II	Room 2401
1:00 p.m. - 1:45 p.m.	Welcome and Introductions	Board Room	9:00 a.m. - 11:00 a.m.	Physics II	Room 2402
	David Saugey, Co-Chair, Local Committee, USFS			Poster Session	Room 2303
	Mostafa Hemmati, President, AAS, Ark. Tech Univ.		10:00 a.m. - 10:30 a.m.	Break - Refreshments	Third Floor
	Dave Hammond, Deputy Forest Supervisor, USFS		12:00 noon	Second Business Meeting	Board Room
	Dr. Vickie Logan, Principal, ASMS		Slide Preview Room	Board Room - after 2:00 p.m. Friday	
	Mr. Paul Griep, Public Affairs/Recruiting, ASMS		Sigma XI Breakfast	Jernigan's Restaurant inside the Downtowner Hotel 7:00 a.m. Saturday	
	Betty Crump, Co-Chair, Local Committee, USFS		Parking Info	Parking is not available at the Math and Science School. Parking is available in the First Presbyterian Church parking lot directly across the street. Registered Guests of the Downtowner Hotel have ample parking directly behind the Hotel. Parking is available along Central Avenue (meter and fee lot) and Whittingham Avenue in front of the Math and Science School.	
2:00 p.m. - 5:00 p.m.	Paper Sessions		Dining Information	Central Avenue (Hwy. 7) is the main thoroughfare in Hot Springs. Travel south from the Downtowner Hotel to find everything from McDonalds to Red Lobster. Jernigan's Restaurant is located inside the Downtowner and a variety of other eating establishments are a short walk from the Hotel and Math and Science School.	
	Vertebrate Zoo I	Room 2307			
	Invertebrate Zoo	Room 2308/09			
	Biomedical, Biochemistry	Room 2301			
	Microbiology, Immunology				
	Chemistry I	Room 2401			
	Physics I	Room 2402			
2:00 p.m. - 5:00 p.m.	Poster Session	Room 2303			
3:00 p.m. - 4:00 p.m.	Break - Refreshments	Third Floor			
5:30 p.m. - 7:00 p.m.	Hospitality Gathering	Second Floor			
	Downtowner Hotel - Crown Room				

Saturday, 8 April 2000

8:00 a.m. - 10:00 a.m.	Registration	Lobby
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SECTION PROGRAMS

* Undergraduate ** Graduate

POSTER SESSION

Friday, April 7, 2000
Location: Room 2303, Third Floor

Time	Topic
	<u>Sam Cron</u> and Gary L. Emmert, Program of Environmental Science and Department of Chemistry, Arkansas State University. COMPARING STANDARD AND NEW REAGENTS FOR MEASURING OZONE CONCENTRATIONS IN DRINKING WATER
	<u>Andy Thornton</u> and William Burns, Arkansas State

University. **COMPUTATIONAL CHEMISTRY: USING GAUSSIAN 98W**

Malcolm L. McCallum and Stanley E. Trauth, Arkansas State University. **THE ARKANSAS AMPHIBIAN MONITORING PROGRAM (AAMP) IN ARKANSAS: A PROJECT IN ITS INFANCY AND IN NEED OF VOLUNTEERS**

Dru S. Dace and Thomas M. Walker, University of Central Arkansas. **A NOVEL MOUSE MODEL FOR MEASURING MACROPHAGE CYTOTOXIC ACTIVITY DURING PACLITAXEL-BASED CHEMOTHERAPY**

Richard D. Smith and Richard C. Kurten, University of Arkansas for Medical Sciences. **CO-LOCALIZATION OF SORTING NEXIN-1 WITH RAB5 USING IMMUNO-FLUORESCENCE MICROSCOPY**

David Annis, Jr. and Terry Keisling, University of Arkansas Northeast Research Extension Center. **USING DIGITAL INFORMATION TECHNOLOGIES TO PROVIDE ENVIRONMENTAL EDUCATIONAL MATERIALS TO CONTESTANTS**

PAPER SESSION

Friday, April 7, 2000

CHEMISTRY I

Location: Room 2401, Fourth Floor

Chairperson: Walter E. Godwin, University of Arkansas at Monticello

- | Time | Topic |
|-------|---|
| 2:00* | <u>Martha Baskett</u> , Rose McConnell, and Walter Godwin, University of Arkansas at Monticello. PYRROLE-FURAN CO-POLYMERS: A MOLECULAR MODELING STUDY |
| 2:15* | <u>Amy Morara</u> , Rose McConnell, and Walter Godwin, University of Arkansas at Monticello. THIOPHENE-FURAN CO-POLYMERS: A MOLECULAR MODELING STUDY |
| 2:30* | <u>Jestin Thomas</u> and Victor Blunt, University of Arkansas at Pine Bluff. SYNTHESIS AND CHARACTERIZATION OF NICKEL (II) AND IRON (III) 1,3 ADAMANTANEDICARBOXYLATE |
| 2:45* | <u>Amber Sawyer</u> and Edmond Wilson, Jr., Harding University. KINETIC RATE CONSTANTS AND TEMPERATURE DEPENDENCIES FOR THE REACTIONS OF CYCLOPROPANE AND $\text{CHF}_2\text{OCHF}_2$ (HFOC-134) WITH HYDROXYL RADICALS |
| 3:00 | Break - Refreshments - Third Floor Lobby |
| 4:00* | <u>Shang-U Kim</u> , Jessica Middleton, David Bailey, Amy Bailey, and Michael J. Panigot, Arkansas State University. SYNTHESIS OF AN ETHYNYL-C-GLYCOSIDE AND ATTEMPTED COUPLING TO POLYHALOGENATED ARENES TO FORM C-GLYCOSIDE DENDRIMERS |
| 4:15* | <u>William Tyler</u> , Victor Blunt, Vincent Litman, Aslam Chowdhury, Shaheen Khan, and William Willingham, University of Arkansas at Pine Bluff. DETERMINATION OF POTASSIUM CHLORATE AND LACTOSE IN SMOKE MUNITIONS |
| 4:30 | <u>Rodney Rowland</u> , Robert E. Maruca, and Justin Charton, Arkansas Tech University. ORGANIC SYNTHESIS OF A HEXADENTANE COMPLEXING COMPOUND |

PHYSICS I

Location: Room 2402, Fourth Floor

Chairperson: Mostafa Hemmati, Arkansas Tech University

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|-------|---|
| 2:00* | Mostafa Hemmati and <u>Rory Andrew Roberts</u> , Arkansas Tech University. WAVE PROFILE FOR ANTIFORCE CLASS II WAVES |
|-------|---|

2:15*	<u>Mike Buck</u> , R. Engelken, C. Chastain, and J. Meyer, Arkansas State University. UNCONVENTIONAL MEDIA OR EXTREME CONDITIONS FOR ELECTROPLATING DIFFICULT-TO-PLATE METALS
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2:30*	<u>D. W. Bullock</u> , Z. Ding, C. Emery, M. Filipkowski, V. P. LaBella, M. Mortazavi, G. Salamo, and P. M. Thibado, University of Arkansas at Fayetteville and University of Arkansas at Pine Bluff. ELECTRON SPIN SCATTERING ACROSS A P-TYPE GAAS (110) STEP USING A FERROMAGNETIC-METAL STM TIP
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2:45*	<u>Chad Chastain</u> , R. Engelken, M. Buck, and J. Meyer, Arkansas State University. TUNGSTEN, MOLYBDENUM, AND OTHER OXIDE FILMS BY SPRAY PYROLYSIS AND OTHER LIQUID SOLUTION METHODS
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3:00	Break - Refreshments - Third Floor Lobby
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PHYSICS I

Location: Room 2402, Fourth Floor

Chairperson: Will Braithwaite, University of Arkansas at Little Rock

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|--------|---|
| 4:00* | <u>Christine A. Byrd</u> , Jeff L. Shaw, Dawn M. Wolford, W. J. Braithwaite, and Edwin S. Braithwaite, University of Arkansas at Little Rock, and Cedarville College, Cedarville, Ohio. TESTING ACCEPTANCE/EFFICIENCY OF STAR'S MAIN TPC WITH REALISTIC DATA |
| 4:15* | <u>Justin Meyer</u> , R. Engelken, M. Buck, and C. Chastain, Arkansas State University. ENHANCEMENT OF METAL SULFIDE FILMS CHEMICALLY DEPOSITED FROM THIOLACETIC ACID BATHS THROUGH SUBSTRATE PROCESSING |
| 4:30** | <u>Steve Nicoletti</u> and Al Adams, University of Arkansas at Little Rock. OPTICAL TRANSMITTANCE OF RICE LEAVES |

VERTEBRATE ZOOLOGY I

Location: Room 2307, Third Floor

Chairperson: David Jamieson, Arkansas State University at Newport

- | Time | Topic |
|--------|---|
| 2:00** | <u>Mitch Wine</u> , Steve Blumenshine, and George Harp, Arkansas State University. CURRENT POPULATION DENSITY OF THE YELLOWCHEEK DARTER |
| 2:15* | <u>Daniel Brown</u> and Steven Beaupre, Hendrix College, and University of Arkansas at Fayetteville. MAPPING KERNEL HOME RANGE ESTIMATES OF THE TIMBER RATTLESNAKE |
| 2:30 | <u>Tommy Finley</u> , Renn Tumison, and John Hardee, Henderson State University. PRELIMINARY STUDY OF THE INCIDENCE OF LEAD IN MOURNING DOVES IN ARKANSAS |
| 2:45** | Stanley E. Trauth and <u>Malcolm L. McCallum</u> , Arkansas State University. CURLY-TAIL MALFORMITY IN HATCHLINGS OF THE ALLIGATOR SNAPPING TURTLE, <i>MACROCLEMYS TEMMINICKII</i> (TESTUDINES: CHELYDRIDAE), FROM NORTHEASTERN ARKANSAS |
| 3:00 | Break - Refreshments - Third Floor Lobby |

VERTEBRATE ZOOLOGY I

Location: Room 2307, Third Floor

Chairperson: Allen Carter, Arkansas Game and Fish Commission

- | <u>Time</u> | <u>Topic</u> |
|-------------|--|
| 4:00 | Stanley E. Trauth, Arkansas State University. WINTER BREEDING AS A COMMON OCCURRENCE IN THE RINGED SALAMANDER, <i>AMBYSTOMA ANNULATUM</i> (CAUDATA: AMBYSTOMATIDAE), IN THE OZARK NATIONAL FOREST OF NORTHCENTRAL ARKANSAS |
| 4:15 | Thomas M. Buchanan, Jerry Smith, Diana Saul, Jeff Harwick, Tim Burnley, Mark Oliver, and Ken Shirley, Westark College, and Fisheries Division, Arkansas Game and Fish Commission. NEW ARKANSAS RECORDS FOR TWO NONINDIGENOUS FISH SPECIES, WITH A SUMMARY OF PREVIOUS RECORDS OF NONNATIVE FISHES FROM ARKANSAS |
| 4:30 | Leo Carson Davis, John Scoggins, and J. Alan Holman, Southern Arkansas University, Fouke High School, and Michigan State University. LARGE PLEISTOCENE BOX TURTLE FROM SOUTHWEST ARKANSAS |
| 4:45 | Betty G. Crump and Henry W. Robison, U.S. Forest Service, and Southern Arkansas University. A RECORD OF THE LAKE STURGEON, <i>ACIPENSER FULVESCENS</i> RAFINESQUE, FROM THE CADDO RIVER (OUA-CHITA RIVER DRAINAGE), ARKANSAS |

INVERTEBRATE ZOOLOGY

Location: Room 2309/2309, Third Floor

Chairperson: John Harris, Arkansas Highway and Transportation Department

- | <u>Time</u> | <u>Topic</u> |
|-------------|---|
| 2:00** | Camille Flinders and Dan Magoulick, University of Central Arkansas. SCALE DEPENDENT SPECIES ASSOCIATION OF LOTIC SYSTEM CRAYFISH IN THE SALEM PLATEAU REGION OF NORTHERN ARKANSAS AND SOUTHERN MISSOURI |
| 2:15 | Henry W. Robison and John R. Holsinger, Southern Arkansas University, and Old Dominion University, Norfolk, Virginia. FIRST RECORD OF THE SUBTERRANEAN AMPHIPOD CRUSTACEAN, <i>ALLOCRANGONYX HUBRICHTI</i> (ALLOCRANGONYCTIDAE), IN ARKANSAS |
| 2:30 | Jim Edson, University of Arkansas at Monticello. MONARCH BUTTERFLIES IN ARKANSAS |
| 2:45* | Karen Arbuckle, Southern Arkansas University. HYPOTHETICAL ORIGINS OF PALEOZOIC FOSSILS FROM THE GULF COASTAL PLAIN |
| 3:00 | Break - Refreshments - Third Floor Lobby |

INVERTEBRATE ZOOLOGY

Location: Room 2309/2309, Third Floor

Chairperson: George Harp, Arkansas State University

- | <u>Time</u> | <u>Topic</u> |
|-------------|---|
| 4:00 | George L. Harp and Phoebe A. Harp, Arkansas State University. OCCURRENCE OF <i>OPHIOGOMPHUS WESTFALLI</i> (GOMPHIDAE: ODONATA) IN MISSOURI |

- | | |
|------|---|
| 4:15 | Alan D. Christian, Chris L. Davidson, William R. Posey, Peter J. Rust, Jerry L. Farris, John L. Harris, and George L. Harp, Arkansas State University. GROWTH CURVES OF FOUR SPECIES OF COMMERCIALY VALUABLE FRESH-WATER MUSSELS (BIVALVIA: UNIONIDAE) IN ARKANSAS |
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BIOMEDICAL

Location: Room 2301, Third Floor

Chairperson: Anne Grippo, Arkansas State University

- | <u>Time</u> | <u>Topic</u> |
|-------------|--|
| 2:00** | W. D. Bryant, W. Humphrey, and A. Grippo, Arkansas State University. THE EFFECTS OF ESTROGENIC AGENTS ON RAM SPERM ACROSOME REACTION |
| 2:15** | D. DeLynn Holleman and Steven W. Runge, University of Central Arkansas. A COMPARISON OF APOPTOTIC INDUCTION IN THE GUT OF <i>APLYSIA CALIFORNICA</i> AND THE SPRAGUE-DAWLEY RAT |
| 2:30* | David Gilmore, Barbara Murphy, April Stewart, Amanda Smith, and Holly Harrell, Arkansas State University. CONVERSION OF GRAY WATER TO BACTERIAL PLASTIC |
| 2:45** | R. L. Jordan and W. L. Gray, University of Arkansas for Medical Sciences. CHANNEL CATFISH HERPESVIRUS GENE EXPRESSION IN INFECTED FISH |
| 3:00 | Break - Refreshments - Third Floor Lobby |

BIOMEDICAL

Location: Room 2301, Third Floor

Chairperson: David Gilmore, Arkansas State University

- | <u>Time</u> | <u>Topic</u> |
|-------------|--|
| 4:00 | H. B. Starnes, M. W. White, R. Mahalingam, and W. L. Gray, University of Arkansas for Medical Sciences. THE COMPLETE SEQUENCE OF THE SIMIAN VARICELLA VIRUS GENOME AND COMPARATIVE ANALYSIS WITH THE VARICELLA ZOSTER VIRUS |
| 4:15 | Lisa Mullis and Wayne L. Gray, University of Arkansas for Medical Sciences. CHARACTERIZATION OF THE SIMIAN VARICELLA VIRUS GLYCOPROTEIN E |

PAPER SESSION

Saturday, April 8, 2000

CHEMISTRY II

Location: Room 2401, Fourth Floor

Chairperson: Frank Setliff, University of Arkansas at Little Rock

- | <u>Time</u> | <u>Topic</u> |
|-------------|---|
| 9:00* | Melissa Arnold, David Bailey, and Michael J. Panigot, Arkansas State University. SELECTIVE FUNCTIONALIZATION OF THE 6-HYDROXYL GROUP OF METHYL ALPHA-D-GLUCOPYRANOSIDE: APPLICATION TO THE PREPARATION OF C-GLYCOSIDE BASED DENDRIMERS |
| 9:15* | Amy Bailey and Michael J. Panigot, Arkansas State University. PREPARATION OF A GALACTOSE- |

DERIVED LACTONE AND CONVERSION TO AN ALKYNOL C-GALACTOSIDE FOR USE IN THE PREPARATION OF C-GLYCOSIDE CONTAINING DENDRIMERS

9:30** Layla Bland and Michael J. Panigot, Arkansas State University. **REACTION OF ALPINE-BORANE WITH ALDEHYDES: REACTIVITY RATE ASSESSMENT BY OBSERVATION OF THE DISAPPEARANCE OF THE CARBONYL π - π PEAK BY UV - VISIBLE SPECTROMETRY**

9:45* Jason Boggs, Mariah McMasters, and Michael J. Panigot, Arkansas State University. **PREPARATION OF AN ELECTROPHILIC 3-METHYLINDOLE DERIVATIVE: DIFFICULTIES IN FORMING A STABLE, SUITABLE MATERIAL FOR THE PREPARATION OF TRYPTOPHAN**

10:00 Break - Refreshments - Third Floor Lobby

CHEMISTRY II

Location: Room 2401, Fourth Floor

Chairperson: Michael J. Panigot, Arkansas State University

Time	Topic
10:30	<u>Frank L. Setliff</u> and Tyson K. Spradlin, University of Arkansas at Little Rock. HAMMETT CORRELATIONS OF THE SULFONAMIDE PROTON CHEMICAL SHIFT IN A SERIES OF N-(SUBSTITUTED ARYL)-p-TOLUENE-SULFONAMIDES

10:45* Frank L. Setliff and Melody K. Harrison, University of Arkansas at Little Rock. **HAMMETT CORRELATIONS OF THE AMIDE PROTON CHEMICAL SHIFTS IN A SERIES OF 1-TOSYL-3-(4-SUBSTITUTED PHENYL) UREAS**

11:00 Robert E. Maruca, Rodney Rowland, and Justin Charton, Arkansas Tech University. **SYNTHESIS OF SOLID MATRIX BOUND METAL ION COMPLEXING AGENTS**

11:15 Alan Ford, Pam Ramage, and Scott Reeve, Arkansas State University. **INFRARED DIODE LASER SPECTROSCOPY OF JET COOLED IRON PENTACARBONYL**

PHYSICS II

Location: Room 2402, Fourth Floor

Chairperson: Mostafa Hemmati, Arkansas Tech University

Time	Topic
9:00*	Ann Wright, <u>Larry Dunn</u> , Brian Alford, and Justin Patton, Hendrix College. A STUDY OF THE AMPLITUDE OF PRESSURE AND THRUST OSCILLATIONS IN A LAB-SCALE HYBRID ROCKET

9:15 Christine A. Byrd, Jeff L. Shaw, M. Wolford, W. J. Braithwaite, and Edwin S. Braithwaite, University of Arkansas at Little Rock, and Cedarville College, Cedarville, Ohio. **USING REALISTIC DATA FOR ISOTROPIC MESON DECAYS IN STAR'S MAIN TPC**

9:30 Tim Schroeder and Jon Carnahan, Southern Arkansas University, and Northern Illinois University, DeKalb, Illinois. **LASER EXCITATION ATOMIC FLUORESCENCE SPECTROSCOPY IN A HELIUM MIP**

9:45 Andrew Wright, University of Arkansas at Little Rock. **MECHATRONIC DESIGN OF A TREADED MOBILE ROBOT FOR MINE SWEEPING**

10:00 Break - Refreshments - Third Floor Lobby

VERTEBRATE ZOOLOGY II

Location: Room 2307, Third Floor

Chairperson: Henry W. Robison, Southern Arkansas University

Time	Topic
9:00	<u>Gregory G. Humphreys</u> and Thomas A. Nelson, Deltic Timber Company, El Dorado, Arkansas, and Eastern Illinois University, Charleston, Illinois. MORTALITY OF ADULT WHITE-TAILED DEER ON FORT CHAFFEE, ARKANSAS

9:15 John P. Hart and David H. Jamieson, USDA Wildlife Services, Grand Rapids, Minnesota, and Arkansas State University at Newport. **ESTIMATING THE WEIGHT OF EASTERN GRAY WOLVES (*CANIS LUPUS LYCAON*) FROM CHEST GIRTH MEASUREMENTS**

9:30 Hubert Hervey, Bird Study Group, LSUS Museum of Life Sciences, Louisiana. **LEAST TERN: SUCCESS OF NESTING COLONIES ON RED RIVER**

9:45 Renn Tumblison and Anthony Rocconi, Henderson State University. **OCCURRENCE OF A SECOND SUBSPECIES OF BOX TURTLE (*TERRAPENE CAROLINA*) IN ARKANSAS**

10:00 Break - Refreshments - Third Floor Lobby

VERTEBRATE ZOOLOGY II

Location: Room 2307, Third Floor

Chairperson: Phoebe Harp, Arkansas State University

Time	Topic
10:30*	<u>Allyson R. Neely</u> and Edmond J. Pert, University of Arkansas at Pine Bluff. FEEDING RELATIONS BETWEEN TWO SYNTOPIC, MORPHOLOGICALLY SIMILAR FISHES, THE BLACKSPOTTED TOPMINNOW, <i>FUNDULUS OLIVACEUS</i> AND WESTERN MOSQUITOFISH, <i>GAMBUSIA AFFINIS</i>

10:45 David A. Saugey, J. D. Wilhide, and Betty G. Crump, U.S. Forest Service, Ouachita National Forest, and Arkansas State University. **OCCURENCE AND DISTRIBUTION OF THE SILVERHAIRED BAT, *LASIONYCTERIS NOCTIVAGANS*, IN ARKANSAS**

11:00 Stanley E. Trauth, Malcolm L. McCallum, and Michael E. Cartwright, Arkansas State University, and Wildlife Management Division, Arkansas Game and Fish Commission. **BREEDING MORTALITY IN THE WOOD FROG, *RANA SYLVATICA* (ANURA: RANIDAE), FROM NORTHCENTRAL ARKANSAS**

11:15 Gregory G. Humphreys and Thomas A. Nelson, Deltic Timber Corporation, El Dorado, Arkansas, and Eastern Illinois University, Charleston, Illinois. **HOME RANGE AND MOVEMENTS OF WHITE-TAILED DEER ON FORT CHAFFEE, ARKANSAS**

BOTANY and ENVIRONMENTAL SCIENCE

Location: Room 2308/2309, Third Floor

Chairperson: Gerald Walsh

- | Time | Topic |
|-------------|--|
| 9:00** | <u>Michael R. McCallum</u> , Shauntee Moore, and Jon Russ, Arkansas State University. HPLC ANALYSIS OF LICHEN ACIDS IN BIOGENIC ROCK CRUSTS |
| 9:15** | <u>John W. Prather</u> , Kimberly G. Smith, Cecilia Riley, and Mike Mlodinow, University of Arkansas at Fayetteville, and Gulf Coast Bird Observatory, Lake Jackson, Texas. CHARACTERISTICS OF SOME FRUITING PLANT SPECIES IN NORTHWEST ARKANSAS, AND THE AVIAN ASSEMBLAGES THAT FEED ON THEM |
| 9:30 | James H. Peck, University of Arkansas at Little Rock. FLORISTIC STATUS OF LOG FERNS (<i>DRYOPTERIS</i>) IN ARKANSAS |
| 9:45 | <u>Ronald L. Johnson</u> , Danny Ward, and Richard S. Grippo, Arkansas State University. TEMPORAL VARIATION OF BIOTIC AND ABIOTIC FACTORS OF THE SOUTH FORK OF THE SPRING RIVER, ARKANSAS |
| 10:00 | Break - Refreshments - Third Floor Lobby |

BOTANY and ENVIRONMENTAL SCIENCE

Location: Room 2308/2309, Third Floor

Chairperson: Dan Marsh, Henderson State University

- | Time | Topic |
|-------------|---|
| 10:30 | <u>Robert Brewington</u> , Richard Williams, and Jeff Earl, Arkansas Agricultural Experiment Station, and University of Arkansas at Monticello. TRAVEL COST MODEL FOR DETERMINE PROCUREMENT ZONES USING GIS |
| 10:45 | <u>Jeff Earl</u> , Richard Kluender, and Robert Brewington, Arkansas Agricultural Experiment Station, and University of Arkansas at Monticello. A METHOD TO PREDICT THE REGIONAL LONG-TERM TIMBER SUPPLY USING GIS AND OTHER PUBLICLY AVAILABLE DATA |
| 11:00 | Jeff Earl, <u>Robert Brewington</u> , and Richard Kluender, Arkansas Agricultural Experiment Station, and University of Arkansas at Monticello. COMMODITY AND NON-COMMODITY VALUATION OF A SMALL ACREAGE NON-INDUSTRIAL LANDOWNER HOLDING |
| 11:15 | William R. Teague, University of Arkansas Cooperative Extension Service, Little Rock. LATITUDE, LONGITUDE AND THE PYTHAGOREAN THEOREM IN ARKANSAS |
| 11:30 | Miah M. Adel, University of Arkansas at Pine Bluff. IN QUEST OF GLOBAL WARMING SIGNATURES IN COASTAL CLIMATE DATA |